

Product	Brief description	How to obtain	Comment
<i>LRFD Reference Manuals, Textbooks, and Design Examples:</i>			
1. FHWA/NHI Course 13061 Reference Manual – LRFD Design of Highway Bridges (Volumes I and II)	Overview of all aspects of steel, reinforced concrete and PSC bridge superstructure design and deck slab design and includes design examples of various bridge elements. Also includes guidance on the intent of many of the features in the LRFD Specification.	Originally distributed with course (course is not available at this time). Can be downloaded from AASHTO LRFD website: http://lrfd.aashtoware.org/?siteid=34&c=downloads Cost: Free	Prepared in 1995. Comprehensive primer information. Dual units. Public domain manual that can be reproduced by holder. Entire document is segmented into seven files at the AASHTO website (filename: NHI 13061).
2. FHWA/NHI Course 13068 Reference Manual – LRFD for Highway Bridge Substructures	Reference manual on the implementation of LRFD for substructures and foundation design (includes example problems) .	Originally distributed with course (course is not available at this time). Contact the FHWA Report Center at 301-577-0818 and request Publication HI-98-032. Cost: Free.	Prepared in 1998. Comprehensive primer information. Dual units. Public domain manual that can be reproduced by holder.
3. AISI – Four LRFD Design Examples of Steel Highway Bridges, Volume II, Chapter 1A.	Four steel superstructure bridge design examples with deck design example.	No longer available through AISI.	Prepared in 1995. SI units.
4. PCI Bridge Design Manual, Volumes One and Two, MNL-133-97.	Two-volume design handbook with complete design examples for prestressed concrete bridge superstructures .	Order publication at http://pci.org/store/ (Category List: Structures, Bridge) Cost: Fee set by vendor.	Recently updated bridge design examples (July 2004).
5. Seismic Analysis and Design of the AISI LRFD Design Examples of Steel Highway Bridges, T-1300W.	AISI report consists of a review of current seismic design practices followed by four detailed design examples.	Contact AISI at http://odin.syscomsrv.com/aisishop/dept.asp?dept%5Ffid=51&top%5Fdept%5Ffid=2005 Cost: Fee set by vendor.	
6. Design of Highway Bridges: Based on AASHTO LRFD Bridge Design Specifications.	Textbook by Jay A. Puckett and Richard M. Barker.	Available through Amazon .com at http://www.amazon.com/exec/obidos/ASIN/0471304344/inktomi-bkasin-20/104-2584039-6552757 Cost: Fee set by vendor.	

7. LEAP Software LRFD Bridge Design Books with design examples (2).	Two separate design textbooks by LEAP Software: Substructure Bridge Design and Superstructure Bridge Design .	Available through LEAP Software at: http://www.leapsoft.com/index.php?section=designBooks Cost: Fee set by vendor.	
8. FHWA/NHI LRFD Design Example for Steel Superstructure Bridge with Commentary.	Comprehensive steel bridge design example including deck design, hammerhead piers and cantilever abutments on pile foundations . Comprehensive design process flowcharts included.	Available for downloading at http://lrfd.aashtoware.org/?siteid=34&c=downloads or http://www.fhwa.dot.gov/bridge/lrfd/ Cost: Free	Current through 2002 Interims. Versions in both U.S. Customary and S.I. units. Filename: Steel Superstructure and Steel Superstructure SI
9. FHWA/NHI LRFD Design Example for PSC Superstructure Bridge with Commentary.	Comprehensive PSC bridge design example including deck design, column –type piers on spread footings and integral abutments on steel piles . Comprehensive design process flowcharts included.	Available for downloading at http://lrfd.aashtoware.org/?siteid=34&c=downloads or http://www.fhwa.dot.gov/bridge/lrfd/ Cost: Free	Current through 2002 Interims. Versions in both U.S. Customary and S.I. unit. March 2004 is latest version. Filename: Concrete Superstructure US and Concrete Superstructure SI
10. FHWA/NSBA Three-Span Continuous Composite I-Girder Steel Bridge Design Example	Steel superstructure design based on the AASHTO LRFD Specification, 3 rd Edition.	Currently distributed to participants attending the training course no. 8 listed below.	Comprehensive steel superstructure design example. Updated May 3, 2004.
11. AASHTO LRFD Strut-and-Tie Model Design Examples	PCA publication illustrates the use of strut-and-tie design model with 5 design examples including bent cap, pier footing, pile cap, girder end region and hammerhead pier .	Contact Dr. Shri Bhide, PCA, at 847.972.9100. Fee: \$25.00	Published in 2004.

LRFD Computer Design and Analysis Software:

1. Washington State DOT – QConBridge design software	HL93 live load analysis software for bridge structures.	Download at http://www.wsdot.wa.gov/eesc/bridge/software/ Cost: Free	Available under the terms of the Alternate Route Open Source license. Source code (C++ programming language) is available and can be customized by user. WSDOT encourages user to enhance, distribute and create derivative works from this software.
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2. Washington State DOT – PGSuper LRFD Bridge design software	Prestressed girder superstructure design and analysis tool.	Download at http://www.wsdot.wa.gov/eesc/bridge/software/ Cost: Free	Available under the terms of the Alternate Route Open Source license. Source code (C++ programming language) is available and can be customized by user. WSDOT encourages user to enhance, distribute and create derivative works from this software.
3. Florida DOT - LRFD Bridge design software	Several Mathcad based software including prestressed superstructure and flat slab design templates . Also, a Live Load Generator template and FB-Pier software.	Download at http://www.dot.state.fl.us/structures/ Cost: Free	State specific software. Math Cad Professional Version 7.0 or 8.0 required to run templates. A variety of additional software programs are available at this site for design of retaining walls, culverts and sign supports.
4. Virtis-Opis Version 5.0	AASHTO design, analysis and load rating software for concrete and steel bridge superstructures .	Contact AASHTOWare at http://cms.transportation.org/?siteid=28&pageid=75 Cost: Fee set by vendor.	Licensed by over 20 State Highway Agencies.
5. MERLIN-DASH and MERLIN – DASH/PBEAM	Straight Steel girder bridge design software and PSC design software .	Website information at: http://best.umd.edu/ Cost: Fee set by vendor.	
6. MDX	Straight and curved girder bridge superstructure design and analysis software.	Contact MDX Software at 573-446-3221 or www.mdxsoftware.com Cost: Fee set by vendor.	Proprietary software.
7. AISISplice Version 3.0	Steel bridge superstructure splice design software.	Contact AISI at http://www.steel.org/infrastructure/bridges/spliced/index.html Cost: Fee set by vendor.	Proprietary software. Free 30-day trial
8. AISI Short Span Steel Bridge Plans and Software	Standard plans and a computer design software for steel bridge superstructures .	Contact AISI at http://www.steel.org/infrastructure/bridges/index.html Cost: Fee set by vendor.	Proprietary software. Free 30-day trial

9. SAM	Concrete and steel bridge superstructure design and analysis software.	Available from Bestech Systems at http://www.lrfdsoftware.com/products.html Cost: Fee set by vendor.	Proprietary software. Free subscription for one year.
10. Conspan	LRFD and AASHTO Standard Design and Analysis of Simple and Continuous Precast/Prestressed Bridge Beams	Available at LEAP Software http://www.leapsoft.com/ Cost: Fee set by vendor.	Proprietary software. Free 15-day trial.
11. RC-Pier	LRFD and AASHTO Standard Design and Analysis of Reinforced Concrete Bridge Substructures and Foundations	Available at LEAP Software at: http://www.leapsoft.com/ Cost: Fee set by vendor.	Proprietary software. Free 15-day trial.
12. Consys 2000	LRFD and AASHTO Standard Live Load and Static Load Analysis	Available at LEAP Software at: http://www.leapsoft.com/ Cost: Fee set by vendor.	Proprietary software. Free 15-day trial.
13. PSBeam	Prestressed Concrete Bridge Girder Design in accordance with AASHTO LRFD.	Available at Eriksson Technologies. Visit http://www.eriktech.com/software.htm Cost: Fee set by vendor.	Proprietary software. Free 20-day trial.
14. Conbox PT	LRFD Design of CIP reinforced or post-tensioned concrete box girder and slab bridges.	Available at LEAP Software at: http://www.leapsoft.com/ Cost: Fee set by vendor.	Proprietary software.
15. Pennsylvania DOT LRFD Bridge Design Software	Steel and PSC superstructure design, bolted splice and bearing design software.	Available at: http://penndot.engrprograms.com/home/ Cost: Fee set by PennDOT	State Highway Departments may acquire the software free of charge.
16. Wyoming Department of Transportation – BRASS Software	BRASS-GIRDER (LRFD) is available and BRASS-PIER (LRFD) is being beta tested.	Available at: http://wydotweb.state.wy.us/web/brass/ Cost: Fee set by Wyoming DOT	
17. STLBRIDGE	Continuous steel bridge analysis and design software.	Available at: http://www.bridgesoftinc.com/index.html Cost: Fee set by vendor.	Proprietary software.

LRFD Training Courses:

1. PCA	Customized short courses for reinforced and prestressed concrete girder design.	Contact Dr. Shri Bhide or Dr. Basile Rabat at 847.966.6200.	
2. Steel Design Seminars by the National Bridge Research Organization (NaBRO)	Customized steel superstructure design courses that are ½-day to 2 days in length.	Available through University of Nebraska-Lincoln at: www.nabro.unl.edu/about/education/index.asp Cost: Fee set by vendor.	
3. FHWA/NHI Course 13061 - LRFD Design of Highway Bridges	Primer LRFD course introduces and discusses the application of the LRFD Specification. Fourteen (14) videotapes with 28 hours of training.	Available at the Kansas University Continuing Education center at: http://www.kuce.org/programs/lrfd/ Cost: Fee set by vendor.	
4. Bridge Foundation Design by TRANSPEED.	Implementation of AASHTO LRFD Specifications for design of bridge foundations (21 Professional Development Hours).	Available through TRANSPEED at: http://www.engr.washington.edu/epp/transped/ Cost: Fee set by vendor.	The University of Washington College of Engineering administers TRANSPEED.
5. Concrete Bridge Design by TRANSPEED	Concrete deck, girder and substructure design course (21 Professional Development Hours).	Available through TRANSPEED at: http://www.engr.washington.edu/epp/transped/ Cost: Fee set by vendor	The University of Washington College of Engineering administers TRANSPEED.
6. LEAP Software LRFD Design courses.	LRFD design course by LEAP Software.	Available through LEAP Software at: http://www.leapsoft.com/index.php?section=academy Cost: Fee set by vendor.	
7. LRFD Prestressed Concrete Beam Design Workshop	Two day course illustrating the application of the LRFD Design provisions for PSC superstructures .	Contact Jeff Smith, FHWA, to schedule a course at: jeff.smith@fhwa.dot.gov Cost: Course available to State Highway Agencies at no cost.	Comprehensive primer for deploying the LRFD provisions for PSC girder design.

8. NSBA/FHWA LRFD Steel Bridge Design Seminar illustrating application of the 3 rd Edition provisions	One day seminar with instruction on the application of the steel girder bridge design provisions in accordance with the LRFD Bridge Specifications, 3rd Edition .	Contact Tom Saad, FHWA, to schedule a course at: Thomas.saad@fhwa.dot.gov Cost: Course available to State Highway Agencies at no cost.	Delivered in partnership by the National Steel Bridge Alliance and FHWA.
9. PCA/FHWA LRFD Concrete Design Seminar	One day seminar with instruction on the application of the concrete design provisions in the latest version of the LRFD Bridge Design Specifications.	Contact Tom Saad, FHWA, to schedule a course at: Thomas.saad@fhwa.dot.gov Cost: Course available to State Highway Agencies at no cost.	Delivered in partnership by the Portland Cement Association, the National Concrete Bridge Council and FHWA.

State Highway Agency Design Manuals, Guidelines and State-Specific Design Examples:

1. Florida DOT LRFD Guidelines	State specific guidelines and standard plans for LRFD implementation.	Available for download at: http://www.dot.state.fl.us/structures/ Cost: Free	
2. Minnesota DOT Bridge Design Manual	Comprehensive state-specific LRFD Design Manual with many design examples included.	Available at: http://www.dot.state.mn.us/bridge/Manuals/LRFD/index.html Cost: Free	
3. Tennessee DOT Bridge Design Example: SR 45 (Old Hickory Blvd.)/I-65, Davidson County	Two-span welded plate girder bridge on a tangent alignment.	Available at: http://lrfd.aashtoware.org/?siteid=34&c=downloads Fee: Free	Current through 3 rd edition specification and 2005 interims. Filename: Design Build Total
4. Tennessee DOT Bridge Design Example: I-55/Mallory Avenue, Shelby County	Three-span horizontally curved welded plate girder bridge .	Available at: http://lrfd.aashtoware.org/?siteid=34&c=downloads Fee: Free	Current through 3 rd edition specification and 2005 interims. Filename: I55 LRFD.PDF